BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.

REMARKS

Claims 1-4, 7-15, and 18-20 are all the claims pending in the application, claims 5, 6, 16 and 17 having been canceled in previous amendments.

Applicant notes with appreciation that the finality of the Office Action dated March 12, 2003, has been withdrawn in view of the arguments presented in Applicant's Response submitted on May 9, 2003.

Claims 1-4, 7-15, and 18-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sgroi (U.S. patent no. 5,357,048) in view of Gruenbaum (U.S. patent no. 5,565,641). Applicant respectfully traverses these rejections, and requests reconsideration and allowance of the pending claims in view of the following arguments.

Rejection of claims 1-4, 7-15, and 18-20 Under 35 U.S.C. §103(a)

To establish a *prima facie* case of obviousness, the Examiner bears the burden of demonstrating that (1) there is some suggestion or motivation to modify the reference or to combine reference teachings; (2) there is a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* M.P.E.P. § 2142.01 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Applicant will show that the Examiner has failed to establish a *prima facie* case of obviousness since the cited references, alone or in combination, do not teach at least one element recited in the rejected claims.

Independent Claims 1 and 2

With regard to independent claims 1 and 2, the Examiner asserts that Sgroi teaches each of the claim limitations except for the use of a control signal generator that is either a low frequency oscillator (LFO) or a transient generator. The Examiner cited Gruenbaum to remedy this deficiency of Sgroi, stating that Gruenbaum teaches the LFO and transient generator limitations. Applicant respectfully disagrees.

Gruenbaum is directed to a MIDI-compatible, electronic musical instrument (Gruenbaum, col. 1, lines 6-8). Applicant's review of the cited portions of this reference finds a discussion of a technique for generating an audio output based upon a "simple square wave oscillation" or a "deeper manipulation of the square wave to simulate a more complex oscillator" (Gruenbaum, col. 8, lines 1-6; Office Action, pg. 5).

Applicant recognizes that Gruenbaum mentions the use of an "oscillator" in connection with the generation of output, but it is key to note that the Gruenbaum oscillator does not generate "low frequency" control signals, but instead, only provides audio frequency output (Gruenbaum, col. 7, line 67- col. 8, line 1). Independent claims 1 and 2, in firm contrast, recite a control signal generator (LFO and/or transient generator) for generating an outgoing real-time digital control signal. While Gruenbaum describes an oscillator for generating audio output, Applicant's claims 1 and 2 recite a control signal generator that generates a digital control signal.

Applicant respectfully points out that the inventions recited in claims 1 and 2 are not concerned with the generation of audio output. For example, these claims specifically recite a "low frequency oscillator" which inherently generates a "low frequency" signal that is by explicit definition below audio signal frequencies. For example, audio frequencies are understood by those skilled in the art as having a range from about 16-20 Hz to about 16-20 KHz. LFOs on the other

hand generate signals that fall well below the lower 16-20 Hz audio frequency range. A typical frequency range of a LFO is from about 0.02 – 0.12 Hz to about 4-7 Hz. Similarly, the transient generator recited in claims 1 and 2 also provides digital control signals, not audio signals as the Gruenbaum reference describes.

Because all the claim limitations of independent claims 1 and 2 are not taught or suggested by Sgroi and Gruenbaum, Applicant submits that the Examiner has failed to make out a *prima facie* case for obviousness. *See* M.P.E.P. § 2142.01. Accordingly, these independent claims, and their respective dependencies, claims 3-4 and 7-14, are believed to be patentable.

Independent Claim 15

Turning now to Applicant's independent claim 15, a method is recited where the generation of outgoing MIDI digital control signals is based upon a non-merging combination of first and second incoming MIDI control signals.

Applicant's review of figure 4 of Sgroi, which was cited in the Office Action, finds that scanner 54 merges control signals into a merged event list 58, which is then presented to processor 62. Processor 62 then operates on each incoming event separately, as shown in the drawings spanning figures 7a and 7b. Processor 62 simply operates on each event separately, and then transmits each of the results into a common, merged MIDI output stream 66. Consequently, Sgroi only provides teachings relating to the merging of incoming control signals and therefore cannot teach or suggest the generation of outgoing digital control signals based upon a non-merging combination (e.g., multiplication, addition, etc.) of first and second incoming control signals, as recited in claim 15.

Applicant's review of Gruenbaum finds that this reference does not repair the deficiencies of Sgroi. Applicant therefore asserts that all the claim limitations of independent claim 15 are not taught or suggested by Sgroi and Gruenbaum and submits that the Examiner has failed to make out a *prima facie* case for obviousness. Accordingly, independent claim 15, as well as dependent claims 18 and 19, are also believed to be patentable.

Independent Claim 20

In the Office Action, the Examiner indicated that Applicant's previously submitted arguments concerning Sgroi's failure to teach the limitations of claim 20 have been considered and are persuasive. The Examiner has cited a new reference, Gruenbaum, in making the current rejection to claim 20. However, Applicant has reviewed the Office Action and is unable to find any reference to the specific portions of Gruenbaum which, in the opinion of the Examiner, contain the alleged teachings. Moreover, Applicant's detailed review of Gruenbaum finds that this reference lacks any teaching or discussion of any of the MIDI message conversion methods recited in claim 20. Applicant is therefore unsure how the teachings of Sgroi and Gruenbaum are being applied to claim 20. Accordingly, for the Examiner's convenience, Applicant provides the previously submitted comments that distinctly point out the shortcomings of Sgroi.

As recited in claim 20, incoming MIDI control signals are changed into outgoing MIDI control signals that are of a different type of MIDI control signal than the incoming MIDI control signal. For example, an incoming MIDI signal note number value is changed to an outgoing MIDI signal continuous controller value; an incoming MIDI note velocity value is changed to a continuous controller value; an incoming MIDI continuous controller value is changed to a MIDI note value, and so on. The message conversion method of this claim therefore receives an

incoming MIDI control signal of a particular MIDI signal type (note number, note velocity, continuous controller, etc., as defined by the MIDI protocol), and then generates an outgoing real-time MIDI control signal that is of a different type of control signal within the MIDI protocol.

Applicant's review of the cited portions of Sgroi reveals that this reference may well describe the processing of control signals such as note number signals, velocity signals, and continuous controller signals, but the MIDI signal type is never changed. That is, the processing provided in Sgroi does not change the type of signal processed (note number signals remain note number signals; velocity signals remain velocity signals, and so on), but only the numerical values that the unchanged signal type carries. In fact, the entire principle of the Sgroi system is precisely to change the value within each type of control signal, and this reference does not teach or suggest the changing of the type of signal at all, much less using any of the methods recited in claim 20.

Applicant therefore asserts that all the claim limitations of independent claim 20 are not taught or suggested by Sgroi and Gruenbaum and submits that a *prima facie* case for obviousness has not been met. Accordingly, independent claim 20 is also believed to be patentable.

CONCLUSION

The Examiner's rejections having been overcome, Applicant submits that the subject application is in condition for allowance. Should any issues remain unresolved, Examiner Fletcher is invited to telephone the undersigned attorney.

Respectfully submitted,

LESTER F. LUDWIG

By: Jeffrey J. Lotspeich
Attorney for Applicant
Registration No. 45,737

Dated: December 29, 2003

THE MAXHAM FIRM
750 'B' STREET, SUITE 3100
SAN DIEGO, CALIFORNIA 92101
TELEPHONE: (619) 233-9004
FACSIMILE: (619) 544-1246